

# National Bureau of Standards Certificate

## Standard Reference Material 4203-C Radioactivity Standard Cobalt-60

This Standard Reference Material consists of cobalt-60, deposited as cobalt chloride, on polyester tape approximately 0.006-centimeter thick and covered by another layer of the same tape.

The activity in nuclear transformations per second at 1015 EST February 15, 1973, was

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This standard is a dried deposit of an accurately weighed aliquot of a solution whose gamma-ray-emission rate was measured in the National Bureau of Standards  $4\pi\gamma$  ionization chamber that had previously been calibrated by  $\gamma\text{-}\gamma$  and  $4\pi\beta\text{-}\pi$  coincidence counting.

The uncertainty in the activity, 1.2<sub>2</sub> percent, is the sum of 0.1<sub>3</sub> percent, which is the 99-percent confidence limit ( $2.72 S_m$ , where  $S_m$  is the standard error computed from forty measurements), and 1.0<sub>9</sub> percent, which is the linear sum of the estimated upper limits of conceivable systematic errors.

The gamma-ray spectrum of this material was examined with a Ge(Li)-spectrometer and no impurities were observed.

A half life of  $5.261 \pm 0.008$  years is suggested. This value is the weighted mean of 3 determinations on 3 preceding series of SRM's. The uncertainty, 0.008 year, is the 99-percent confidence limit. Half-life measurements and gamma-ray-spectrum analyses will be made periodically, and users of this SRM will be notified if the measurements indicate departure from the previously found results.

This Standard Reference Material was prepared and calibrated in the Center for Radiation Research, Radioactivity Section, W. B. Mann, Chief.

Washington, D. C. 20234  
April 10, 1973

J. Paul Cali, Chief  
Office of Standard Reference Materials

4203-C